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## A New *Hesperentomon* (Protura) from Yunnan, Southwest China\*

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**Abstract** A new species of genus *Hesperentomon* is described from Yunnan, Southwest China, under the name *H. dianicum* sp. nov. It is similar to *H. ching-haiense* from Northwest China, but is different from the latter in the structure of female squama genitalis and in relative lengths of foretarsal sensillae *t* 3, *c*, *f*, *g* and *a'*.

**Key words:** Protura; new species; *Hesperentomon dianicum*; Yunnan.

Through the soil faunistic surveys made by our Sino-Japanese joint party in Yunnan for 1992 and 1993, ample proturan specimens have been obtained from various places. Our preliminary examination revealed that many unknown forms were to be found in our collection. In the present paper, we are going to describe a new species of the genus *Hesperentomon* PRICE as the first part of the series dealing with the results of our investigations on the proturan fauna of Yunnan. The type specimen designated in the present paper is to be deposited in the collection of the Shanghai Institute of Entomology, Academia Sinica, China.

We wish to express our hearty thanks to Mr. CHENG Yi-cun, Dr. Shun-Ichi UENO, Messrs. XIAO Ning-nan, ZHANG Jun and all who favoured us with every kind of help through our cooperative works.

### *Hesperentomon dianicum* sp. nov.

(Figs. 1–2)

*Specimens examined.* 1 ♀, Lijiang, 2,700 m alt. (above sea level), Yunnan, 13–V–1992, collected by XIAO Ning-nan; 1 larva II, ditto, 1,500 m alt., 14–V–1992, collected by XIAO Ning-nan; 1 ♂, 3 ♀, 1 larva II, 1 larva I. Mt. Diancang Shan,

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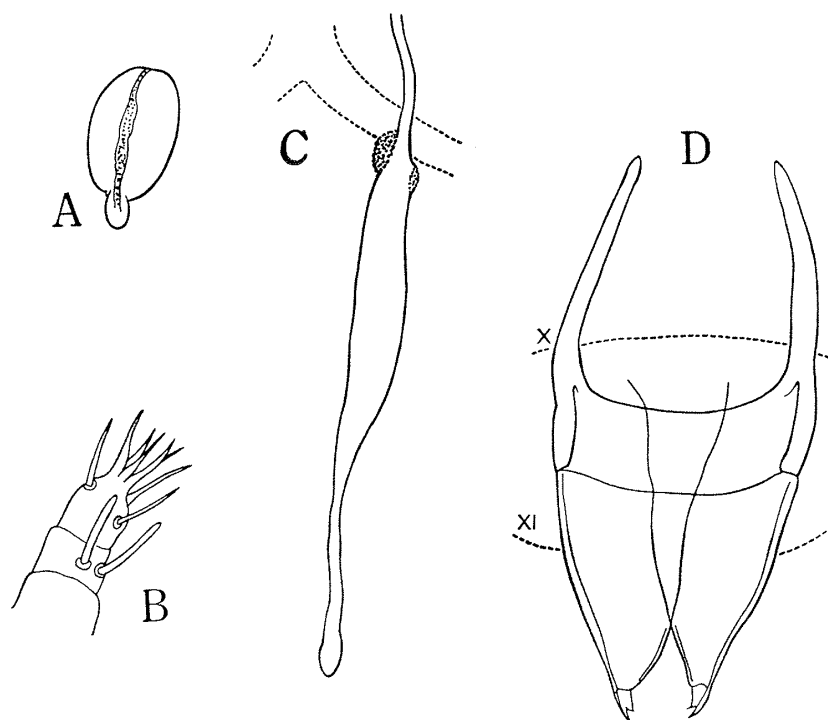


Fig. 1. *Hesperentomon dianicum* sp. nov. — A, Pseudoculus; B, maxillary palpus; C, filamento di sostegno of maxilla; D, female squama genitalis. Signs: X, abdominal sternite X; XI, abd. stern. XI.

2,230 m alt., Dali, Yunnan, 31–VIII–1993, collected by YIN Wen-ying & others; 1 ♀, ditto, 2,620 m alt., 4–IX–1993, collected by XIE Rong-dong & others; 1 ♀, ditto, 3,500 m alt., 6–IX–1993, collected by XIAO Ning-nian and others; 1 ♀, Mt. Laohu Shan, 2,150 m alt., Dali, Yunnan, 3–IX–1993, collected by YIN Wen-ying & others.

Body length 1,070–1,100  $\mu\text{m}$ .

Head oval, 156–160  $\mu\text{m}$  in dorsal view, with the additional setae, submedial and sublateral, on the posterior part. Pseudoculus elongate, with distinct opening (Fig. 1 A),  $\text{PR} \doteq 10$ . Maxillary palpus with two slender sensillae on penultimate segment (Fig. 1 B). Labial palpus without basal sensilla. Filamento di sostegno with long sac-like calyx and thin posterior filament, and with two small racemose appendices on the basal part of calyx (Fig. 1 C),  $\text{CF} = 3.2$ . Inner, median and outer setae on the hind margin of head 12  $\mu\text{m}$ , 10–12  $\mu\text{m}$  and 8  $\mu\text{m}$  in length.

Foretarsus (Fig. 2) 106–109  $\mu\text{m}$  (74–79  $\mu\text{m}$  in larva II and 63  $\mu\text{m}$  in larva I), claw with outer and inner flaps,  $\text{TR} = 3.3$ –3.4; empodium short,  $\text{EU} = 0.11$ ; S-shaped seta a little shorter than claw. All the foretarsal sensillae relatively short and rather thick, similar to one another in shape. Dorsal sensilla  $t\ 1$  at the same level as  $\alpha\ 3$ ,  $\text{BS} = 0.9$ ;  $t\ 2$  proximal to  $d$ ;  $t\ 3$  at about the same level as  $g$ . Exterior sensilla  $a$  a little shorter than  $b$ ;  $c$  short, less than a half of  $b$  in length, its apex slightly surpassing the level of  $t\ 2$ ;  $e$  and  $f$  distinctly shorter than  $g$ ; apex of  $g$  surpassing tarsus. In-

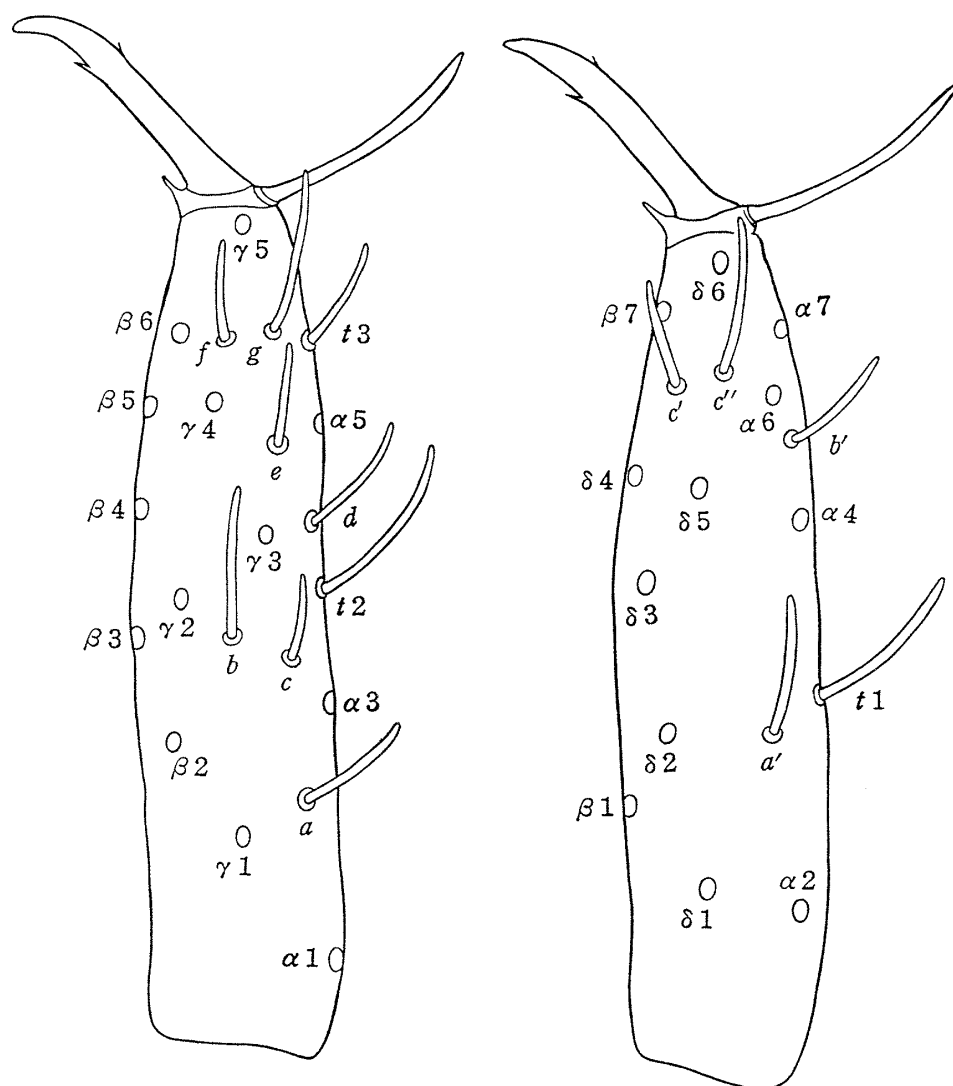


Fig. 2. *Hesperentomon dianicum* sp. nov.; foretarsus, interior (right) and exterior (left) views.

terior sensilla  $a'$  proximal to  $t1$  and a little longer than  $b'$ , its apex surpassing the level of  $t2$ ;  $b''$  absent;  $c'$  shorter than  $c''$ . Ventral seta  $\beta1$  and interior seta  $\delta1$  subequal to each other in shape and similar to  $\delta2-5$  in length. Middle and hind tarsi  $46\ \mu\text{m}$  and  $59\ \mu\text{m}$  in length; their claws  $29\ \mu\text{m}$  and  $30\ \mu\text{m}$  with long empodia about two-thirds of claw length.

Chaetotaxy similar to that of *H. chinghaiense* as shown in Table 1. Thoraces II–III each with two pairs of dorsal anterior setae, A 2 and 4, eight pairs of dorsal posterior setae, P 1, 1 a, 2, 2 a, 3, 4, 5 and 5 a, and five ventral posterior setae, P c, 2 and 3. Dorsal P 1, 1 a, 2 and 2 a on th. II  $24-26\ \mu\text{m}$ ,  $10-12\ \mu\text{m}$ ,  $35-40\ \mu\text{m}$  and  $13-14\ \mu\text{m}$  in length, respectively. P 1, 1 a and 2 on abdominal tergite I  $26-28\ \mu\text{m}$ ,  $17-18\ \mu\text{m}$ , and  $39-42\ \mu\text{m}$  in length; those on terg. IV  $26-28\ \mu\text{m}$ ,  $18-21\ \mu\text{m}$  and  $36-37$

Table 1. Chaetotaxy of *Hesperentomon dianicum* sp. nov.\*

		Dorsal		Ventral	
		Formula	Composition of setae	Formula	Composition of setae
Thorax	I	4		$\frac{4-2}{6}$	A 1, 2, M P 1, 2, 3
	II	$\frac{6}{16}$	A 2, 4, M P 1, 1a, 2, 2a, 3, 4, 5, 5a	$\frac{4-2}{5}$	A 1, 3, M P c, 2, 3
	III	$\frac{6}{16}$	A 2, 4 M P 1, 1a, 2, 2a, 3, 4, 5, 5a	$\frac{6-2}{5}$	A 1, 3, 4, M P c, 2, 3
Abdomen	I	$\frac{4}{12}$	A 1, 2 P 1, 1a, 2, 3, 4, 5	$\frac{4}{4}$	A 1, 2 P 1, 2
	II-III	$\frac{8}{14}$	A 1, 2, 4, 5 P 1, 1a, 2, 3, 4, 4a, 5	$\frac{4}{5}$	A 1, 2 P c, 1, 2
	IV-VI	$\frac{8}{14}$	A 1, 2, 4, 5 P 1, 1a, 2, 3, 4, 4a, 5	$\frac{4}{9}$	A 1, 2 P c, 1, 1a, 2, 3
	VII	$\frac{8}{18}$	A 1, 2, 4, 5 P 1, 1a, 2, 2a, 3, 3a, 4, 4a, 5	$\frac{4}{9}$	A 1, 2 P c, 1, 1a, 2, 3
	VIII	$\frac{6}{14}$	A 1, 2, 5 P 1, 1a, 2, 3, 4, 4a, 5	$\frac{0}{6}$	P 1, 1a, 2
	IX-X	12	1, 2, 3, 4, 4a, 5	6	1, 1a, 2
	XI	8	1, 2, 3, 5	6	1, 2, 3
	XII	9		8	

\* Notation of body setae is referred to that in TANG and YIN (1991) and in IMADATÉ (1989).

$\mu\text{m}$  in length; those on terg. VII 37–44  $\mu\text{m}$ , 23–25  $\mu\text{m}$  and 39–43  $\mu\text{m}$  in length, respectively.

Abdominal appendages II–III each with four setae and a terminal vesicle. On abd. VIII, striate band absent; only a single line with minute serration present; comb composed of about ten teeth of irregular size. Female squama genitalis with sharply pointed acrostylus and distinct lateral sclerotization (Fig. 1 D).

Holotype. 1 ♀, Mt. Diancang Shan, 2,230 m alt., 31–VIII–1993, collected by YIN Wen-ying and others.

Notes. The present species is closely similar in many respects to *H. chinghaiense* from Chinghai (YIN, 1982), Hubei (YIN 1987) and Sichuan (YIN, 1989) Provinces in China. It is, however, distinguished from the latter by the structure of female squama genitalis and of foretarsal claw as well as by the relative length of foretarsal sensillae, *t* 3, *c*, *f*, *g* and *a'*.

Abnormality seems rare in chaetotaxy. The posterior central seta on abdominal sternite VII is absent in one female from the Diancang Shan Mts. of the eight adult specimens examined.

The specific name is derived from Dian, an old poetic appellation and also a simplified name of Yunnan.

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## The occurrence of *Elenchus japonicus* (ESAKI et HASHIMOTO) (Strepsiptera, Elenchidae) in Mindanao, the Philippines<sup>1)</sup>

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Key words: Strepsiptera; *Elenchus japonicus*; Mindanao.

During the field surveys on the natural enemies of rice insect pests carried as the IBP in Thailand, the Philippines and Hong Kong, the first author set up the modified

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1) Faunal and biological studies on the insects of paddy fields in Asia, XXXVIII.